Remarks

Reconsideration and allowance of the subject application are respectfully solicited.

Claims 1-14 remain pending in the application, with Claims 1, 9 and 13 being independent. Claims 5-7 and 13 have been amended herein.

Applicant notes with appreciation the indication that Claims 2 and 10 recite allowable subject matter. These claims were objected to for being dependent upon rejected base claims. However, these claims will not be rewritten in independent form at this time because their respective independent claims are believed to be allowable for the reasons discussed below.

Claims 5-7 were objected to for a minor informality. These claims were amended in the manner suggested by the Examiner. Accordingly, reconsideration and withdrawal of the objection to the claims are requested.

Claims 1, 9 and 14 were rejected under 35 U.S.C. § 102 as being anticipated by U.S. Patent No. 5,111,302 (Chan et al.). Claims 3 and 11 were rejected under 35 U.S.C. § 103 as being unpatentable over Chan et al. in view of U.S. Patent No. 4,651,287 (Tsao). Claims 4 and 12 were rejected under § 103 as being unpatentable over Chan et al. in view of U.S. Patent No. 4,714,964 (Sasaki) and Tsao. Claim 5 was rejected under § 103 as being unpatentable over Chan et al. in further view of U.S. Patent No. 6,193,347 (Askeland et al.). Claim 6 was rejected under § 103 as being unpatentable over Chan et al. in further view of Askeland et al. and U.S. Patent No. 4,680,645 (Dispoto et al.). Claim 7 was rejected under § 103 as being unpatentable over Chan et al. in further view of U.S. Patent

No. 6,338,538 (Toshiaki). Claim 8 was rejected under § 103 as being unpatentable over Chan et al. in further view of Askeland et al. and U.S. Patent No. 6,354,688 (Inoue et al.). Claim 13 was rejected under § 103 as being unpatentable over Chan et al. in view of U.S. Patent No. 6,164,747 (Yashima et al.). These rejections are respectfully traversed.

Independent Claims 1, 9, and 13 are directed to an ink jet printing apparatus, and ink jet printing method, and a computer readable memory, respectively. Each independent claim recites, inter alia, a first table indicating a pixel density distribution pattern where a pixel density distribution within predetermined pixels is patterned, a second table indicating combinations of density distribution patterns of print pixels and the ink ejection print elements in correspondence with gray scale values, designating a region consisting of a predetermined number of neighboring pixels from pixels that form an input image, and selecting the pixel density distribution pattern for the designated region from the first table. The claims further recite controlling ejection/non-ejection of ink from the plurality of ink ejection print elements by looking up the second table in accordance with the selected pixel density distribution pattern and a gray scale value thereof.

Referring to Fig. 11 as an example of the first table, such can manage pixel density distribution patterns within predetermined pixels (e.g., 2 x 2 pixels). Each of the pixel density distribution patterns can represent a pattern indicating density of which pixel position within the predetermined pixels is high. A pixel density distribution pattern corresponding to a region to be processed of an input image can be selected from the first table on the basis of a pixel value of the region. The particular print elements to be used for printing the region can be determined by referring to a second table on the basis of the

region and the density of the region. Ink ejection print elements to be used for printing can be designated based on a pixel density distribution pattern corresponding to the region of the input image and gray scale values of the region. Thus, a region of an input image corresponding to a pixel density distribution pattern can define a print pixel printed by ink ejection print elements, and the pixel density distribution pattern can be selected for each of the print pixels of the input image. Therefore, the information size of the image data can be reduced without decreasing the resolution of the input image and a high-speed image print process and load reduction on the controller (CPU) can be attained when ink ejection print elements are selected based on a combination of densities of inks, ink droplet amounts or the like.

Chan et al. relates to a method and system of gray scale printing of dots. One pixel can be formed by one or more dots. The Examiner suggests that the table of Fig. 4 of Chan et al. indicates a pixel density distribution pattern where a pixel density distribution within predetermined pixels is patterned. Applicant submits that this pattern in Fig. 4 defines a relation between ink density and dot forming positions, but is not a pattern for indicating density of which pixel position within predetermined pixels is high. Accordingly, Chan et al. fails to disclose or suggest a first table indicating a pixel density distribution pattern where a pixel density distribution within predetermined pixels is patterned, as is recited in independent Claims 1, 9 and 13.

The Examiner further suggests that the table of Fig. 2B of Chan et al. indicates combinations of density distribution patterns of print pixels and ink ejection print elements in correspondence with gray scale values. However, Applicant submits that the

table of Fig. 2B of Chan et al. indicates managing gray scale values of pixels and a combination of kinds of ink densities represented in the gray scale value, but does not determine which ink ejection print elements are used for printing a region. Thus, Chan et al. also fails to disclose or suggest a second table indicating combinations of density distribution patterns of print pixels and ink ejection print elements in correspondence with gray scale values, as is also recited in independent Claims 1, 9 and 13.

Thus, Chan et al. fails to disclose or suggest important features of the present invention recited in independent Claims 1, 9 and 13.

In Yashima et al., the recording apparatus and method includes an ink density data/combination data unit, a memory for storing density levels as well as information corresponding to combinations of recording agents which express the density levels, and multi-level conversion means. However, Yashima et al. is not believed to disclose or suggest the first or second tables recited in independent Claims 1, 9 and 13. Thus, Yashima et al. fails to remedy the deficiencies of Chan et al. noted above with respect to the independent claims.

The remaining citations have been reviewed, but are not believed to be any more relevant than those discussed above with respect to the independent claims.

Thus, independent Claims 1, 9 and 13 are patentable over the citations of record. Reconsideration and withdrawal of the §§ 102 and 103 rejections are respectfully requested.

For the foregoing reasons, Applicant respectfully submits that the present invention is patentably defined by independent Claims 1, 9 and 13. Dependent Claims 2-8,

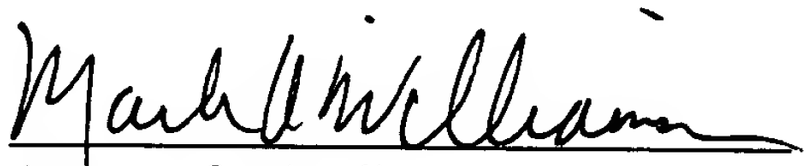
10-12 and 14 are also allowable, in their own right, for defining features of the present invention in addition to those recited in their respective independent claims. Individual consideration of the dependent claims is requested.

This Amendment After Final Rejection does not raise new issues, is an earnest attempt to advance prosecution and reduce the number of issues, and is believed to clearly place this application in condition for allowance. This Amendment was not earlier presented because Applicant earnestly believed that the prior Amendment placed the subject application in condition for allowance. Accordingly, entry of this Amendment under 37 CFR 1.116 is respectfully requested.

Applicant submits that the present application is in condition for allowance. Favorable reconsideration, withdrawal of the objections and rejections set forth in the above-noted Office Action, and an early Notice of Allowance are requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below-listed address.

Respectfully submitted,



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